# Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Mystery Powders: Physical & Chemical Properties

#### **Objective:**

Students will complete various tests of white powders to develop an understanding of physical and chemical properties. Once students observe the reactions of those powders, they will be given a Mystery Powder. Based on the observations of the reactions of the mystery powder, students should be able to identify the mystery powder.

**Procedures:**

**Obtain a medicine cup with 4 teaspoons of Baby Powder. Complete the following tests for Baby Powder. Record all observations in the Data Table.**

1. **Physical Properties**: Record the physical properties (color, texture, and shape, etc.) of your powder. PLEASE DO NOT TASTE ANY CHEMICALS IN A SCIENCE LAB!!!
2. **Reaction to Water**: Put 1 teaspoon of your powder in a small white cup. Mix 1 teaspoon of water into the powder in the small white cup.
3. **Reaction to Heat**: Make a small “cup” out of aluminum foil for your powder. Place 1 teaspoon of the powder in the foil “cup.” Spread the powder out thin. Heat on hot plate for 1-2 minutes. WARNING!!! Foil will be HOT. Use a clothes pin to remove the hot foil cup from the hot plate.
4. **Reaction to Iodine**: Place 1 teaspoon of your powder in a small white cup. Add 3 drops of iodine to the powder in the small white cup.
5. **Reaction to Vinegar**: Place 1 teaspoon of your powder in a small white cup. Add 3 drops of vinegar to the powder in the small white cup.

**\*\*\*Repeat procedures for ALL white powders and record observations in the Data Table.**

**Wash and dry all cups and return to front (teacher) table.**

Data Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Powder** | **Physical Properties** | **Reaction to Water** | **Reaction to Heat** | **Reaction to Iodine** | **Reaction to Vinegar** | **Everyday use for this Powder** |
| Baby Powder |  |  |  |  |  |  |
| Corn Starch |  |  |  |  |  |  |
| Sugar |  |  |  |  |  |  |
| Salt |  |  |  |  |  |  |
| Baking Powder |  |  |  |  |  |  |
| Baking Soda |  |  |  |  |  |  |
| Plaster |  |  |  |  |  |  |
| Mystery Powder |  |  |  |  |  |  |

I think the mystery powder is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. What is a physical property? Give an example from this lab.
2. What is a chemical property? Give an example from this lab.
3. How do you know that there has been a chemical reaction when you mix baking soda and vinegar together?